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EXAMINER	
KRAMSKAYA, MARINA	
ART UNIT	**PAPER NUMBER**
2858	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/804,230	MCQUEENEY, KENNETH	
	Examiner	Art Unit	
	Marina Kramskaya	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5,6 and 8-16* is/are rejected.

7)☐ Claim(s) *3-4, 7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03/19/2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities: the limitation of "equalize the amplitude" is unclear because it is not clear which signal the "amplitude" is referring to. Appropriate correction is required.

2. Claim 9 is objected to because of the following informalities: the phrase "wherein the first signal detector is different and the second signal detector have capacitances that are different, respectively, from each other", should be "wherein the first signal detector ~~is different~~ and the second signal detector have capacitances that are different, respectively, from each other". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 9 and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement and the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, and in such a

way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. There is no support found in the specification for the stated limitation of "the capacitance of the first capacitive sensor is different from the capacitance of the second capacitive sensor" or "the first signal detector and the second signal detector have capacitances that are different". Paragraphs [0027] and [0028] only provide support for each of the two sensors to have different areas, referring to the size of the sensors alone, which is stated in Claim 3. Further, the sensors or signal detectors, as disclosed, detect capacitance which is dependent on the condition of the ignition coil. Capacitance depends on the dielectric and the distance between at least two electrodes. Since each sensor is a single metal plate, there is no capacitance associated with each sensor.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 6, 9-12, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Dittmann et al., US 5,444,376.

As best understood by the examiner the "different capacitances" in the new added limitation, will be understood as the capacitances that are detected by the sensors.

As per Claim 1, Dittmann discloses a capacitive probe (FIG. 1 & 2) for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil (**11**, **12**; column 3, lines 36-40), the capacitive probe comprising;

- a base portion **32**;
- a fastening device **34** by which the base portion **32** of the capacitive probe may be removably attached to an ignition coil housing of an ignition coil **12** under test;
- a positioning member **35** connected to the base portion **32** (at connection point **36**); and
- a first and second capacitive sensors (**25**, **26**) arranged on the positioning member, each capacitive sensor (**25**, **26**) having an electrical lead (**30**, **35**) connected thereto,
- wherein the capacitance (**27**) of the first capacitive sensor (**25**) is difference for the capacitance (**28**) of the second capacitive senor (**26**), (i.e. each sensor detects the capacitance over time, and the capacitance changes).

As best understood by the examiner the "different capacitances" in the new added limitation, will be understood as the capacitances that are detected by the sensors.

As per Claim 9, Dittmann discloses a diagnostic system for analyzing the operation of an engine (FIG. 1 & 2), the diagnostic system comprising:

a capacitive probe (FIG. 1 & 2) for simultaneously detecting an amplitude of a first and a second electric near field present proximate a hybrid or DIS ignition coil **12** housing, the capacitive probe comprising a fastening device **34** configured to removably attach the capacitive probe to the ignition coil housing and a body **12**, the body bearing a first signal detector and a second signal detector (**25**, **26**),

wherein each of the first signal detector and a second signal detector are arranged adjacent a location of a respective one of the first and second electric near fields for detecting an amplitude of the respective electric near field (i.e. near the ignition coil, see FIG. 1);

wherein the first signal detector (**25**) and the second signal detector (**26**) have capacitances that are different, respectively, from each other (capacitances **27** and **28** respectively, i.e. each sensor detects the capacitance over time, and the capacitance changes); and

wherein each signal detector outputs (via **30**, **35**) a signal representative of a respective electric near field.

As per Claim 10, Dittmann further discloses the diagnostic system further comprising:

a signal processor **32** for receiving the signals output from the capacitive probe and processing the signals (in **32**).

As per Claim 11. Dittmann further discloses the diagnostic system further comprising:

a reporting system (in **32**) for receiving signals processed by the processing system and generating a physical representation of the processed signals (output **33**).

As best understood by the examiner the "different capacitances" in the new added limitation, will be understood as the capacitances that are detected by the sensors.

As per Claim 12, Dittmann discloses a method for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil (**11**, **12**; column 3, lines 36-40) housing, comprising the steps of:

- providing a capacitive probe (FIG. 1 & 2) comprising a fastening device **34** configured to removably attach the capacitive probe to the ignition coil **12** housing and a body **32**, the body bearing a first signal detector **25** and a second signal detector **26**;
- attaching the capacitive probe to the ignition coil housing (by means **27**, **28**);
- positioning the first signal detector **25** proximate a position of the ignition coil **11** housing adjacent a location of a first electric near field;
- positioning the second signal detector **26** proximate a position of the ignition coil **12** housing adjacent a location of a second electric near field;

- simultaneously detecting the first electric near field using the first signal detector and detecting the second electric near field using the second signal detector (column 1, lines 44-45), and
- outputting from each of the first signal detector **25** and second signal detector **26** a signal **33** representative of a respective one of the first and second electric near field, wherein
- the first signal detector (**25**) and the second signal detector (**26**) have capacitances that are different, respectively, from each other (capacitances **27** and **28** respectively, i.e. each sensor detects the capacitance over time, and the capacitance changes).

As per Claims 6 and15, Dittmann further discloses a capacitive probe for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil, further comprising

an arm **36** connecting the positioning member **35** to at least one of the base portion **32** and the fastening device **34**, wherein

the positioning member **35** is adapted to move along at least one axis relative to the base portion **32** (i.e. the lead **35** is movable), and

at least one of the positioning member **35** and arm **36** are adapted to move along or about at least one axis relative to the base **32** portion (i.e. the lead **35** is movable).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dittmann et al., in view of Yerkovich et al., US 5,208,541.

Dittmann discloses a capacitive probe for detection of electric fields present near hybrid or DIS ignition coil as applied to claim 1 above.

Dittmann does not disclose the probe where at least one of the first capacitive sensor and second capacitive sensor comprises a metal plate.

Yerkovich discloses the ignition coil testing probe **15** where at least one of the first capacitive sensor and second capacitive sensor comprises a metal plate (**35**; column 3, lines 23-24).

Therefore, it would have been obvious to a person of ordinary skill in the art to use a metal plate capacitive sensor, as taught by Yerkovich, in the probe of Dittmann, in order to have a conductive surface to detect the field.

3. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dittmann in view of Shaland, US 5,132,625.

A capacitive probe for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil, the capacitive probe comprising:

- a base portion (**32**)
- a fastening device (**34**) by which the base portion (**32**) of the capacitive probe may be removably attached to an ignition coil housing of an ignition coil (**12**) under test;
- a positioning member (**35**) connected to the base portion (**32**) (at connection point **36**); and
- first and second capacitive sensors (**25**, **26**) arranged on the positioning member, each capacitive sensor having an electric lead (**30**, **35**) connected thereto,
- wherein a capacitor (**45**) is connected to at least one of the first capacitive sensor and the second capacitive sensor (**25**, **26**) to substantially equalize an amplitude (of the signal detected by sensors **25** and **26**) between the first capacitive sensor and the second capacitive sensor (i.e. calibrate: column 4, lines 28-37).

Dittmann does not disclose associating the first capacitive sensor with a positive going output of the ignition coil under test and associating the second capacitive sensor with a negative going output of the ignition coil under test.

Shaland, US 5,132,625 discloses associating the first capacitive sensor with a positive going output of the ignition coil under test and the second capacitive sensor with a negative going output of the ignition coil under test (ABS, lines 5-10).

Therefore, it would have been obvious to a person of ordinary skill in the art to have one sensor associated with the positive going output of the ignition coil and

another sensor associated with the negative going output of the ignition coil, as taught by Shaland, in the detection device of Dittmann, in order to account for both the positive and negative voltage signals that are output for accurate detection.

As per Claim 16, Dittmann further discloses a capacitive probe for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil according to claim 8, further comprising

an arm **36** connecting the positioning member **35** to at least one of the base portion **32** and the fastening device **34**, wherein

the positioning member **35** is adapted to move along at least one axis relative to the base portion **32** (i.e. the lead **35** is movable),

at least one of the positioning member **35** and arm **36** are adapted to move along or about at least one axis relative to the base portion **32** (i.e. the lead **35** is movable), and

the capacitor **45** connects at least one of the first capacitive sensor **25** and the second capacitive sensor **26** to at least one of the positioning member **35** and the arm **36** (through capacitor **47** and diode **37**).

4. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dittmann in view of Sims, US 5,614,828.

Dittmann discloses a method for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil housing as applied to claim 12

above. Dittmann also discloses processing a signal output by at least one of the first signal detector and second signal detector (in **32** where the output is **33**).

Dittmann does not disclose using at least one of a signal processor and amplifier.

Sims discloses a DIS testing system where the signals are processed using at least one of a signal processor **15** and amplifier **22**.

Therefore, it would have been obvious to a person of ordinary skill in the art to use a signal processor and an amplifier, as taught by Sims, in the testing method of Dittmann, in order to amplify the signal of the ignition coil.

As per Claim 14, Dittmann discloses a method for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil housing as applied to claim 12 above. Dittmann also discloses reporting at least one signal output **31** by the first signal detector and second signal detector to a further diagnostic device **48**.

Dittmann does not disclose reporting of the signals to a display device, a printing device, communication device, and an electronic storage device.

Sims discloses reporting of the signals to a display device (i.e. oscilloscope). Sims does not explicitly disclose further connection to a printing device, communication device, and an electronic storage device. However connection of a printing device, communication device, and an electronic storage device is well know in the art.

Therefore, it would have been obvious to a person of ordinary skill in the art to incorporate a printing device, communication device, and an electronic storage device

in the further diagnostic device **48** of Dittmann in order to have a record of the capacitively sensed data.

Allowable Subject Matter

5. Claims 3-4 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As per Claim 3, the prior art fails to teach of the use of capacitive sensors with metallizations having different areas.

As per Claim 4, Shaland, US 5,132,625 teaches of capacitive sensors wherein one is associated with a positive going output of the ignition coil under test and the other capacitive sensor is associated with the negative going output of the ignition coil under test (ABS, lines 5-10). However, the prior art fails to teach the association of a capacitive sensor with different areas to the different polarities.

As per Claim 7, the prior art fails to teach the arm comprising a curvilinear plate.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marina Kramskaya whose telephone number is (571)272-2146. The examiner can normally be reached on M-F 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571)272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marina Kramskaya
Examiner
Art Unit 2858

MK

ANJAN DEB
PRIMARY EXAMINER